

**PRE-APPEAL BRIEF REQUEST FOR REVIEW**Docket Number (Optional)  
42P1630X

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April 2, 2009

Signature /Michelle L. Evans/

Typed or printed  
name Michelle EvansApplication No.  
10/788,657Filed  
February 27, 2004

First Named Inventor

Lei Shao

Art Unit  
2416Examiner  
MURPHY, Rhonda L.

Applicant requests review of the final rejection in the above-identified application. No amendments are being filed with this request.

This request is being filed with a Notice of Appeal.

The review is requested for the reason(s) stated on the attached sheet(s).

NOTE: No more than five (5) pages may be provided.

I am the:

applicant/inventor.

assignee of record of the entire interest.  
See 37 CFR 3.71. Statement under of 37 CFR 3.73(b) is enclosed.  
(Form PTO/SB/96)

Attorney or agent of record.  
Registration Number 42,879

attorney or agent acting under 37 CFR 1.34.  
Registration number if acting under 37 CFR 1.34 \_\_\_\_\_

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Date

NOTE: Signatures of all the inventors or assignees of record of the entire interest or their representative(s) are required. Submit multiple forms if more than one signature is required.

\*Total of \_\_\_\_\_ forms are submitted.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appl. No. : 10/788,657 Confirmation No. 3606  
Applicant : Lei Shao  
Filed : February 27, 2004  
TC/A.U. : 2416  
Examiner : Murphy, Rhonda L.  
  
Docket No. : 042390.P16330X  
Title : AN APPARATUS AND ASSOCIATED METHODS TO INTRODUCE DIVERSITY IN A MULTICARRIER CHANNEL

**Mail Stop AF**  
Commissioner For Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

PRE-APPEAL CONFERENCE BRIEF

Sir or Madam:

In response to the Final Office Action mailed December 11, 2008, Applicants respectfully requests a pre-appeal conference. A Notice of Appeal and corresponding fee is submitted herewith.

**CERTIFICATE OF MAILING/TRANSMISSION**

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/Michelle L. Evans/ 4/2/09  
Michelle L. Evans Date

## REASONS FOR REQUEST FOR REVIEW

### OVERVIEW

Applicant respectfully requests review of this application. Claims 30-44 are pending, and all claims are currently rejected. All claims were rejected in the Final Office Action mailed December 11, 2008 as being unpatentable over “A Space-Frequency Transmitter Diversity Technique for OFDM Systems,” Globecom 2000, IEEE Global Telecommunications Conference by Lee, et al. (*Lee*) in view of U.S. Patent No. 7,224,744 issued to Giannakis, et al. (*Giannakis*) and U.S. Patent Publication No. 2005/0078761 of Hottinen, et al. (*Hottinen*).

### OBVIOUSNESS REJECTION

Claim 1 recites “generating a *rate-one, space-frequency code* matrix from the received content for transmission via the plurality of more than two transmit antennae...” Independent claims 35 and 40 similarly recite generating a rate-one, space-frequency code matrix for transmission via a plurality of more than two transmit antennae.

The Final Office Action mailed December 11, 2008 states Applicant’s arguments filed on August 11, 2008 are not persuasive. Specifically, the Final Office Action states:

Lee’s passage states “...it is not clear whether using higher order transmitter diversity directly or applying other error correction codes (ECC) on top of the second order transmitter diversity system will achieve better overall performance.” Thus, Lee’s statement does not exclude using more than two antennas. Furthermore, the newly cited Hottinen reference discloses more than two antennas in Figure 3.

See Final Office Action at page 2.

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*Lee* explicitly states that a unity coding rate cannot be used with higher order (i.e., more than two antennae) complex orthogonal block codes. Specifically, *Lee* states:

This paper has focused on two-branch diversity because of its simplicity and its unity coding rate... Unfortunately, higher order complex orthogonal block codes *all have less than unity coding rate*, which results in a reduction in data throughput or an expansion in bandwidth in order to maintain the same data rate. Even if the coding rate loss is acceptable, it is not clear whether using higher order transmitter diversity directly or applying other error correction codes (ECC) on top of the second order transmitter diversity system will achieve better overall performance.

See last paragraph of first column on page 1477 (second paragraph of Summary and Discussion section). Therefore, *Lee* is directed to two antennas for specific reasons (simplicity and unity coding). Modifications that move *Lee* away from two-branch diversity go against the teachings of the reference. The Final Office Action fails to provide any more than superficial reasoning as to why *Lee* should be modified to higher order diversity.

Further, *Lee* contemplates ECC with higher order diversity, but makes no mention of attempting unity coding with the higher order diversity. See last paragraph of first column on page 1477 (second paragraph of Summary and Discussion section). As cited above, the Office Action attempts to apply *Lee* by stating that *Lee* does not explicitly exclude use of more than two antennae. However, this is not the standard for a *prima facie* case of obviousness. MPEP § 706.02(j), states:

To support the conclusion that the claimed invention is directed to obvious subject matter, either the references must expressly or impliedly suggest the claimed invention or the examiner must present a convincing line of reasoning as to why the artisan would have found the claimed invention to have been obvious in light of the teachings of the references." *Ex parte Clapp*, 227 USPQ 972, 973 (Bd. Pat. App. & Inter. 1985).

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(Emphasis added). Thus, the MPEP and applicable case law require that the Office action establish that a combination of references teach or suggest **all of the claim limitations** of rejected claims to sustain an obviousness rejection. As discussed above, Applicants respectfully submit that the Office Action does not establish a *prima facie* case of obviousness.

*Giannakis* fails to cure this deficiency of *Lee* whether or not the characterization of *Giannakis* provided in the Office Action is accurate. That is, *Giannakis* is cited to teach dividing the vector of input symbols into a number of groups to generate subgroup. The Final Office Action states that it would have been obvious to do so, but provides no reasoning other than “to maximize signal level at the antenna.” See page 4.

*Hottinen* is cited to teach more than two antennae. See Final Office Action at page 4. The Final Office Action states that it would have been obvious for the purpose of achieving channel diversity in the system. See Final Office Action at page 5. However, traditional mapping of space-time codes to space-frequency codes require trading diversity for coding gain. That is, full diversity with three or more transmit antenna cannot be achieved via traditional mappings. Nothing in the Final Office Action or any of the references provides the ability to take advantage of more than two antennae with rate-one coding. Therefore, the combination of references clearly fails to provide a *prima facie* case of obviousness.

#### CONCLUSION

For at least the foregoing reasons, Applicants submit that the rejections of the Final Office Action are improper and should be overturned. Therefore, claims 30-44 are

in condition for allowance and such action is earnestly solicited. Please charge any shortages and credit any overcharges to our Deposit Account number 02-2666.

Respectfully submitted,  
**BLAKELY, SOKOLOFF, TAYLOR & ZAFMAN, LLP**

Date: April 2, 2009

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